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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,252	11/17/2003	Robert R. Rice	024.0027	6496

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EXAMINER

GEISEL, KARA E

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,252

Applicant(s)

RICE, ROBERT R.

Examiner

Kara E Geisel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-14 is/are allowed.
- 6) ☒ Claim(s) 1-4, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of hollow core fibers in claim 14 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 is incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: steps between steps “b” and “c” wherein the characteristic spectrum of the target substance is detected, and the stimulated Raman scattering emissions are caused and/or detected.

Claims, which are dependent from claim 1 inherit the problem of this claim, and are therefore also rejected under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reintjes et al. (USPN 5,275,168) in view of Levenson (USPN 6,496,634).

In regards to claim 15, Reintjes discloses a selective amplifier for amplifying reflected (fig. 1, reflected by mirrors 37 and 39) Raman scatter signals of a target substance (fig. 1, 23) comprising an amplifier (fig. 1, 21) containing a pumped sample of a known substance having Raman scatter signals (columns 7-8, lines 67-68 and 1-4), and an optical arrangement (fig., 35) for introducing the reflected Raman scattered signals into the amplifier, wherein the signals are selectively amplified in the cell by stimulated Raman scattering when the spectrum of the signal matches the spectrum of the pumped sample of the known substance (column 8, lines 5-44). It is not disclosed what type of amplifier is used, only that the amplifier contains a pumped known sample.

Levenson discloses a hollow core fiber for use as a Raman amplifier (column 2, lines 6-15). The hollow core fiber has a known sample of fluid in it that interacts with light introduced

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into the fiber in order to amplify a Raman signal (column 3, lines 26-41). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Levenson's hollow core fiber in Reintjes device as an embodiment of the amplifier.

In regards to claim 16, the hollow core fiber of the combined device is a photonic crystal fiber configured as a holey fiber (column 7, lines 49-53).

Allowable Subject Matter

Claims 5-14 are allowed over the prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 5, the prior art of record, taken alone or in combination, fails to disclose or render obvious a sensing system for detecting the presence of a target substance within a target area comprising a receiver containing a sample of a known substance configured to selectively amplify back-scattered light from the target area, wherein a detector verifies the presence of the target substance when the amplified back-scattered light matches a sample of the known substance, in combination with the rest of the limitations of claim 5.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Smith et al. (USPN 5,751,415), Miles et al. (USPN 6,307,626), and Armstrong et al. (US Pub 2004/0150818).

Smith discloses a method for identifying a target substance using Raman, comprising illuminating the target substance with a light to produce back scatter, having the back scattered light be amplified by a Raman enhancement cell, and detecting the back scattered light to produce a Raman signal indicative of the target substance.

Miles discloses a method for identifying a target substance using Raman.

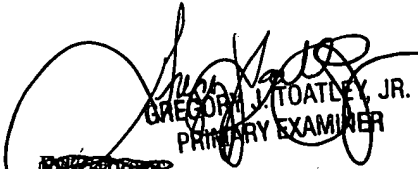
Armstrong discloses a method of amplifying a Raman signal, for use in identifying a target substance, by placing the molecules of interest in contact with fractals.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9306 for regular communications and 703 872 9306 for After Final communications.


GREGORY J. TOATLEY, JR.
PRIMARY EXAMINER
~~Supervisor~~
Primary Examiner
Art Unit 2877

K.G.
KEG
August 17, 2004